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Rural District of North Westmorland

ANNUAL REPORT

OF THE

Medical Officer of Health

FOR THE YEAR

1968

Stricklandgate House, P.O. Box 18, Kendal
Telephone Number: Kendal 23502

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TITUS WILSON & SON
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NATURAL AND SOCIAL CONDITIONS OF THE DISTRICT.

Area of the Rural District in acres	288,688
Population at 1961 Census	15,354
Population (Registrar-General's mid year estimate)	15,350
Inhabited houses	5,431
Rateable Value	£415,009
Product of a Penny Rate	£1,675
Total rate in the Pound levied	10/6d.-11/2d.
of which the County rate was	8/11d.

The Rural District of North Westmorland lies between the central mountainous mass of the Lake District and the escarpment of the Pennine Chain, and possesses a wide variety of scenery. The main geographical feature of the District is the Eden Valley, a fertile agricultural strip which was once the route of a Roman highway and later a strong line of defence against the Border raiders. The River Eden rises in lonely Mallerstang, flows past the market town of Kirkby Stephen to the foothills of the Pennine Range, and thence north-westwards through the ancient Borough of Appleby to its junction with the River Eamont, where it leaves the District.

The country to the north-east rises abruptly to some 2,500 feet, and on the far side the northernmost boundary lies in the desolate area of the Upper Tees Valley. To the south-east of the Eden Valley lies the central upland plateau which extends from Shap to Kirkby Stephen broken only by a few charming wooded valleys and occasional villages. South of this plateau the River Lune flows through pleasant pastoral Ravenstonedale into the austere gorge below Tebay, and the southern boundary of the District is the 2,000 feet high rampart of the great watershed of Westmorland. In the south-west the great barren fells of the Lake District rise to over 3,000 feet above sea level, and in the valleys lie the beautiful lakes of Ullswater and Haweswater. These geographical features determine the natural lines of communication and therefore influence the spread of infectious diseases.

The geology of North Westmorland is also very varied. The escarpment of the Pennine Chain in the north and the central upland mass are formed of lower carboniferous limestone, and the Eden Valley lies between along the lines of the Pennine Fault. The Cross Fell inlier in the Dufton and Hilton areas is a unique formation containing in miniature most of the Lake District rocks, Skiddaw slates, Borrowdale volcanic rocks, Coniston limestone, the Ashgillian series, and

Silurian strata above which follows the dominating carboniferous series of the escarpment.

The Vale of Eden is composed mainly of permian sandstone, with St. Bees sandstone in the south, with small beds of red shales, gypsum and magnesium limestone. Above and below the Penrith sandstone lie Brockrams and Breccias, and further west some red conglomerate basement beds are found in the Pooley Bridge area. To the south-west the Borrowdale Volcanic series occur, with ashes and breccias often well bedded and cleaved, and the Silurian strata commence south of Shap. A further interesting feature is the outcrop of the Shap granite intrusion through the Borrowdale series near their junction with the thin Coniston limestone beds. Glacial drift remains at several places and the valley bottoms contain alluvial deposits. These geological characteristics are of great significance in the supervision of water supplies, sewerage and occupational diseases as well as affecting the economics of the District.

The climate is equable in the valleys and invigorating on the fell-sides and uplands. The air is generally very clear and there is little mist or fog. Temperature gradient inversions are occasional in the mornings. The average rainfall is 75 inches a year in the Haweswater area but decreases sharply towards the eastern parts of the District: in the upper parts of the Eden Valley it is about 35 inches per year. Snow may be expected for one or two weeks in the late winter.

The District is primarily agricultural in character and many of the small local industries are ancillary to agriculture. There are also the following industries which provide much local employment and bring a measure of prosperity to the villages: Stone quarries and mines for gypsum and barytes, factories for plaster and cement, and railway work.

In addition to these local industries the District receives seasonal tourist business along the main highways, and in the Lake District areas, particularly around Pooley Bridge. The variety of these opportunities for local employment helps to some extent to check the continuing drift from the countryside. Economic security and local prosperity are most important factors in the maintenance of the public health.

STAFF.

Name.	Qualifications.	Office.	Whole or Part Time.	Other Offices.
Madge, F. T.	M.D., Ch.B., M.R.C.S., L.R.C.P., D.P.H.	Medical Officer of Health	Part	M.O.H. Combined County Districts of Westmorland
Calvert, D.	F.R.S.H., M.A.P.H.I.	Chief Public Health Inspector to 19.8.68	Part	Engineer and Surveyor
Hart, G.	M.R.S.H., M.A.P.H.I.	Additional Public Health Inspector to 31.8.68	Part	Surveyor
Kelly, R. M.	M.A.P.H.I.	Additional Public Health Inspector to 31.8.68 Chief Public Health Inspector from 1.9.68	Whole	—
Ridley, R.	M.A.P.H.I.	Additional Public Health Inspector from 14.10.68	Whole	—
Cradock, N.	—	Clerk and Technical Assistant	Part	—
Allinson, J. H.	—	Clerk	Whole later Part	—
Holland, E.	—	Clerk	Part later Whole	—
Machell, B. M.	—	Clerk to Medical Officer of Health	Part	Clerk to M.O.H. Combined County Districts of Westmorland

Staff Changes.

Mr. D. Calvert, Chief Public Health Inspector, died on 19th August, 1968. His sad death so shortly before his retirement was a great loss to the Department. I should like to place on record my sincere tribute to him for all the help and friendship he gave during our working partnership over 20 years or more. He did great things for our North Westmorland Rural District.

Mr. R. M. Kelly was promoted to the vacant post of Chief Public Health Inspector on 1st September, 1968, after a short interregnum in which there was a complete reorganisation with the Council's staffing structure.

Arising out of the reorganisation, Mr. G. Hart relinquished his designation as an Additional Public Health Inspector, which had been combined part time with Surveyor duties in the western parts of the area, and he became whole time Surveyor to the entire Rural District on 1st September, 1968. I also record my thanks for all his help and good work for the many years he spent part time with our Department: and it is nice to know that his experience is still available to us within the staff of our Council.

The gap in our Public Health Department staff was then filled by the appointment of Mr. R. Ridley. He commenced on 14th October, 1968 as Additional Public Health Inspector.

The reorganisation of our Council's staffing structure, with the redistribution of duties between the existing personnel, was accompanied by the geographical centralisation of offices at Appleby. They had previously been dispersed between three sites, at Kirkby Stephen, Shap and Appleby. Consequently there was also some reshuffling between whole time and part time members of our clerical staff.

All these have been the biggest changes in the organisation since our Rural District was created in 1935, and we believe that they will work harmoniously and well.

VITAL STATISTICS.

The following extracts are made from information supplied by the Registrar-General with figures for last year for comparison.

Area of the District in acres 288,688

			1967	1968
Estimated civilian population (mid year) ..			15,000	15,350
Live Births.	Legimate—	males	131	120
		females	107	130
	Illegitimate—	males	9	10
		females ..	10	5
		Total	257	265
	Crude Rate per 1,000 population		17.1	17.3
	Corrected Rate per 1,000 population		18.7	19
	Birth Rate for England and Wales		17.2	16.9
	Illegitimate Birth Rate per 1,000 live births.		73.9	56.6
Still Births.	Legitimate—	males	—	1
		females ..	3	1
	Illegitimate—	males	—	1
		females ..	—	—
		Total	3	3
	Total (live and still) births ..		260	268
	Rate per 1,000 total (live and still) births		12	11
	Rate for England and Wales ..		14.8	14
Deaths.	males		95	96
	females		104	99
	Total		199	195
	Crude Rate per 1,000 population ..		12.3	12.7
	Corrected Rate per 1,000 population		12.6	12.1
	Rate for England and Wales ..		11.2	11.9

	1967	1968
Infantile Deaths (under 1 year)		
Total deaths under 1 year	4	3
Rate per 1,000 live births	16	11
Rate for England and Wales ..	18.3	18
Legitimate	3	2
Rate per 1,000 legitimate live births	12.6	8
Illegitimate	1	1
Rate per 1,000 illegitimate live births	52.6	66.6
Neonatal Deaths (under 4 weeks)		
Total neonatal deaths	4	2
Rate per 1,000 live births	16	7.5
Rate for England and Wales ..	12.5	12.3
Early Neonatal Deaths		
Total early neonatal deaths ..	4	2
Rate per 1,000 live births	16	7.5
Rate for England and Wales ..	10.8	10.5
Perinatal Mortality		
Stillbirths and deaths under 1 week	7	5
Rate per 1,000 total (live and still) births	27	18.6
Rate for England and Wales ..	25.4	25
Maternal Mortality		
Total Deaths	—	—
Rate per 1,000 total (live and still) births	—	—
Rate for England and Wales ..	0.20	0.24

Deaths from certain causes:—	1967.	1968.
Cancer	43	35
Measles	Nil	Nil
Whooping Cough	Nil	Nil
The main causes of death were:—		
Heart Disease		61
Cerebro vascular disease		37
Cancer		35

COMMENTARY ON THE VITAL STATISTICS.

Population Movements.

I believe that we are now at the greatest turning point in the history of our Rural District. People are coming here, instead of dwindling away.

Our history is not simply that of a thirty-three years old local government unit: it is the history of a beautiful countryside, and the folk who have made their homes here since the dawn of time. Our fate and fortunes have always been bound up with the fact that we found ourselves astride other people's lines of communication.

The tide of depopulation has turned. Residential development has been trickling in from Penrith for commuters and from further afield for retirement settlers. Our own industrial expansion with the gypsum mines and plasterboard mill at Kirkby Thore has brought a wave of fresh residents But the great flood tide is already rolling on its way up from the south, with the construction of the M.6 motorway across our countryside from Tebay gorge to Eamont Bridge.

For another year or so we shall need to grit our teeth to endure the noise, and the dust, and all the incidental upsets of giant machines tearing a great swathe through our land, consoled only by the extra money in the pay packets of local workers, and by the promise of better things to come.

As soon as the constructional scars have healed, and the motorway is opened, we shall have the proposed service areas and interchange roads revitalising our local economy. We shall be prominently on display all along the shop window of the motorway. Thousands of passers-by will see the attractive charm and opportunities of North Westmorland: the best they will have seen all the way up from London.

So North Westmorland is now at a major turning point in more ways than one. We need to do some hard thinking as to what sort of a new image we select for ourselves. Do we encourage industrial development when we shall then be able to offer fast modern road and rail communications north and southwards, and one of the few trans-Pennine roads to the east? Do we favour more intensive holiday and tourist development of our hitherto unnoticed valleys of still unspoiled natural beauty or do we just sit back and wave to passing motorists?

These are the vital components of Vital Statistics. I reckon that it is a sterile exercise to compile columns of numbers for filing away in the archives.

Birth Rate.

Our birth rate used to be well above that for England and Wales, but in recent years it has been about the national level. The trend seems to be rising again.

Death Rate.

Even when adjusted to the corrected rate for fair comparison, our local death rate usually runs slightly above the national average.

Perinatal Mortality.

There is often not much difference between the cause of a baby dying in the first week of its life and the cause of a stillbirth. Sometimes it is a matter of chance whether such a baby dies before delivery or after. So we now add the number of stillbirths to the number of babies dying in their first week, and we call it the perinatal mortality: in popular language, the deaths which happen around the time of birth. 1968 was a good year for us.

Mountain Accidents.

Accidents on our mountains are a special hazard in the western parts of our area within the Lake District, and on the wild uplands of the Pennines. A regular toll of death and suffering happens every year. Most of these accidents are preventable, and they mostly affect our visitors.

The inexperienced, the unlucky, and the foolhardy, fall out of crags while rock-climbing, lose themselves in the dark and the mist and the snow. The physically unfit die of exhaustion, exposure and heart attacks.

Someone has to turn out to look for them, and rescue them, and bury them. A magnificent local organization of search and rescue teams has been built up in the District to meet these demands.

A campaign for the prevention of mountain accidents has been organized not only in your District, but also back into the big towns from which our visitors come, and to a wider audience on the radio and television. We hope it may help.

NOTIFIABLE DISEASES TABLE.

Disease.	Total	Ages												Admitted to Hospital	Deaths
		-1	1-	2-	3-	4-	5-	10-	15-	20-	35-	45-	65-		
Measles	43	1	4	5	3	9	15	6	—	—	—	—	—	—	—
Dysentery	2	—	—	—	—	—	—	1	—	—	1	—	—	—	—
Infective Jaundice	1	—	—	—	—	—	—	—	—	—	—	1	—	—	—
TOTAL	46	1	4	5	3	9	15	7	—	—	1	1	—	—	—

PREVALENCE AND CONTROL OF INFECTIOUS AND OTHER DISEASES.

The general incidence of illness can be assessed by the weekly number of new claims for sickness benefit at our local National Insurance offices. A logarithmic graph of those figures shows a regular seasonal pattern over the years, and any variations are usually worth investigating. The general trend is some measure of local community health.

Under the new Public Health (Infectious Disease) Regulations 1968, which became operative on 1st October 1968, Acute Meningitis, Infective Jaundice, Leptospirosis, Tetanus and Yellow Fever were added to the list of diseases required to be notified. Pneumonia, Puerperal Pyrexi and Erysipelas are no longer notifiable.

1968 was a very fortunate year. We had only a few scattered cases of Measles during the summer, and nothing else of any consequence.

Immunisation against measles is still to recent to asses its results in our own locality. But we are hoping that it will eventually be as successful as the other immunisations against diphtheria and whooping cough.

I am most grateful to my colleagues in general practice, and in the hospital service, for their prompt help in notifying infectious diseases. The control of the most serious of these illnesses is one of the most important duties of our department.

TUBERCULOSIS TABLE.

Age Periods	New Cases				Deaths			
	Respiratory		Non-respiratory		Respiratory		Non-respiratory	
	M	F	M	F	M	F	M	F
0 ..	—	—	—	—	—	—	—	—
1 ..	—	—	—	—	—	—	—	—
5 ..	—	—	—	—	—	—	—	—
15 ..	—	—	—	—	—	—	—	—
25 ..	—	—	—	—	—	—	—	—
35 ..	—	—	—	—	—	—	—	—
45 ..	—	—	—	—	—	—	—	—
55 ..	—	—	—	—	—	—	—	—
65 ..	1	—	—	—	—	—	—	—
Total ..	1	—	—	—	—	—	—	—

The case notified was transferred in from an outside area.

The number of tuberculosis patients on the register at the year end were:—

		1967.	1968.
Respiratory	...	24	25
Non-Respiratory	...	5	4
		29	29

TUBERCULOSIS.

Tuberculosis is still an important communicable disease of our time. Its prevention is primarily dependent upon social and economic factors in the general community, and secondarily upon the management of the established case. Your Council's functions are three-fold; to investigate the source of infection, to prevent the spread of infection, and to remove conditions favourable to infection.

One of the most effective ways of finding the sources of infection is mass radiography. The mobile units of the Newcastle Regional Hospital Board visit our area periodically, and I should like to see many more of our local population take advantage of this valuable service. It not only detects pulmonary tuberculosis at the more favour- time for a cure, but it can also provide an early warning against many other chest conditions, lung cancer, and certain heart diseases.

People who have been X-rayed are notified by post if the results are satisfactory. But if any abnormalities are found the patient's own family doctor is informed, so that he can best explain the findings and arrange any treatment that may be needed.

Such discoveries more than justify the visits of the Mass Radiography Units to our area at regular intervals. I think that we should do all we can to make really excellent arrangements for their reception, and encourage our local people to turn up in full force for their chest X-rays.

Preventing the spread of infection is helped by prompt treatment and supervision. Waiting time is nowadays very short for admission to hospital, and modern drugs achieve most promising results for return- ing the patient to a useful working life.

The Hospital Services.

Your District lies in the area of the Newcastle Regional Hospital Board, and the general hospitals at Carlisle have traditionally served the acute medical and surgical needs of our people, and it seems likely that they will continue to do so.

But some of the villages on the southern fringes of your District are often more conveniently served by the hospitals in Kendal, which are in the area of the Manchester Regional Hospital Board. There are signs of change down there.

The Government's national policy to develop what are to be called District Hospitals seems likely to mean that the southern end of our

area will have to rely more and more on Carlisle and Lancaster, and less on Kendal, as the Hospital Plan comes into effect in the next ten years.

Some people think that Westmorland risks being left rather ill-served if the hospital services concentrate themselves on Lancaster and Carlisle. There is a lot of territory in between, and transport communications are not very easy for out-patients and visitors to get to those hospitals and home again.

The Newcastle Regional Hospital Board have very sensibly recognised these difficulties, especially for the medium- and long-stay hospital needs of elderly people. A lovely new modern hospital was opened early in 1969, with 60 geriatric beds and 15 maternity beds, at Penrith, just on the border of our Rural District. This enabled the old awkwardly located geriatric hospital at Ormside to be closed. Furthermore we have the promise of a Cottage Hospital to be built at Kirkby Stephen.

Hospital and Ambulance Arrangements for Infectious Diseases.

Hospital accommodation for infectious diseases is provided by the Newcastle Regional Hospital Board at Carlisle.

Smallpox cases will be taken to Langley Park Hospital, Durham City, in ambulances provided by Durham County Council.

Ambulance transport for other cases of infectious disease is provided by the Westmorland County Council.

HOUSING.

Under the Housing Acts your Council has a duty to consider the general housing conditions in your District, to ascertain whether any are unfit for human habitation, and to assess the need for further houses. You have powers to deal with unfit houses, powers to provide new houses for all classes, and various powers and duties in the management of your Council's housing estates. Good housing conditions are an integral part of public health.

Present Housing Position.

There were 5,431 inhabited houses on your Rate Books at the end of the year. With an estimated population of 15,350, the average number of persons per house is 2.8 which is not a high figure. Four houses are legally overcrowded within the strict definition of the Housing Act which assumes that living-rooms are used also for sleeping purposes and the sexes can be segregated irrespective of age, health and family relationships. At the time of the 1961 Census there were 4,833 private households living in 4,826 structurally separate dwellings.

A lot of houses in the Rural District are occupied by only one or two persons. The 1961 Census revealed that 616 houses contained only one occupier, and that another 1,329 houses had only two people living in them.

General Progress of Slum Clearance.

Westmorland as a whole has made very encouraging progress in post-war slum clearance despite all the difficulties of the times. Since the campaign was resumed in 1948 well over 1,300 houses in the County have been dealt with by formal action under the Housing Acts. Most of these will eventually be demolished or converted to trade use, but some of them have been reprieved by their owners undertaking to spend considerable money for comprehensive reconditioning up to modern standards.

In addition to those formal actions there have been a very creditable number of informal schemes for the renovation of substandard houses, either with the aid of improvement grants or entirely by private enterprise. The aim is to save a house wherever possible, but if it cannot be brought up to an acceptable standard of safety, decency and amenity the sooner it is swept away the better.

In your own District good progress continued with slum clearance. Every endeavour was made to persuade owners to recondition houses if there seemed any possibility of retaining them as dwellings.

The Housing Repairs and Rents Act, 1954, required your Council to declare their proposals for dealing with sub-standard houses. You resolved to deal with the estimated 349 houses within the next fifteen years. The Minister of Housing and Local Government approved that scheme and it is now on deposit for public inspection. You may have to speed up a bit, but I hope that the grants now available will save an increasing proportion of old houses before your fifteen-year programme expires in 1970.

Closing Orders.

Housing Act, 1957. *Section* 18.

Seven closing orders were made during the year, and at 31st December there were altogether 3 houses subject to operative closing orders still occupied. One was determined during the year.

Undertakings not to use for Human Habitation.

Housing Act, 1957. *Section* 16.

No such undertaking was accepted during the year, and at 31st December there was one house in this category still occupied.

Undertakings to Perform Works.

Housing Act, 1957. *Section* 16.

No such undertakings were accepted during the year.

Three such undertakings were outstanding on the Register of Local Land Charges.

Demolition Orders.

Housing Act, 1957. *Section* 16.

One demolition order was made during the year. 11 demolition orders were outstanding on the Register of Local Land Charges at the year end. None of these houses were still occupied. 12 other houses were demolished.

Clearance Areas.

Housing Act, 1957. *Section* 44.

There are no outstanding clearance areas.

Improvement Grants.

7 discretionary grants and 65 standard grants were approved during the year. 597 houses have been renovated and converted under grants made by your Council. A very worthwhile effort.

House Building Progress.

Since 1948 your Council have built 399 houses, and another 336 houses have been put up by private enterprise.

Your Council completed 81 houses during the year. Private enterprise completed 42 in the same period. Conversion to existing houses provided no additional units this year.

At the year end 5 houses were under construction by your Council and there were 9 by private enterprise. Those are the statistics published in the Housing Return of the Ministry of Housing and Local Government.

The main new site is at Kirkby Thore where 70 houses were completed at Sandersons Croft, and 9 houses and 4 bungalows at Dunfell View, by the end of the year. Most of these will be required for workers at the enlarged gypsum mine and plaster-board mill.

The proposed housing developments at Brough, Orton and Kirkby Stephen had to be deferred in view of the priority accorded to the Kirkby Thore scheme, and by reason of the prevailing national financial restrictions.

The Special Needs for Old People.

When we come to press the Regional Hospital Boards to establish a goodly number of geriatric beds in accessible places to meet the needs of our North Westmorland patients, we must remind ourselves of our corresponding responsibility to provide sufficient and suitable houses for our own folk to go home to when they come out of hospital. They have a right to come back into the community. The hospital should have a two-way door.

Both your Council and various charitable organizations have done a lot of good work in providing special houses for the elderly, but a lot more needs doing to keep pace with the increasing proportion of old people in the community.

I suggest that purpose-designed bungalows and ground floor flats are still much needed, with low fittings, handrails, lever door-handles, easy gradient steps, and such-like special aids for the elderly.

I believe that the time has come to provide groups of semi-dependency type houses for old people with a resident welfare warden available in case of need. The degree of provision of communal facilities for laundries or guest-rooms would be a matter of detail for decision in design. I am more concerned with the principle. It would relieve the burden on geriatric hospital beds, and upon the Welfare Hostels, besides conferring the gesture of at least semi-independence on the elderly folk in our villages. It would recognise their dignity.

Housing Management.

Your Council now own 559 occupied houses, situated in widely dispersed sites in your extensive District. The housing management is largely in the hands of the Public Health Inspectorate, and every effort is made to inspect the houses at regular intervals to see that the property is kept in good condition.

165 Council houses were built before the 1939-45 war, and many are over 30 years old. The increase in numbers and age of these houses calls for more frequent attention and entails higher maintenance costs.

The rents of your Council houses vary from 17/0d. to 26/6d., exclusive of rates, and the rateable values are between £30 and £50.

When Council houses become available the vacancies are advertised, inviting applicants and stating whether the house is reserved for agricultural workers. All applicants are supplied with a form for submitting details of their personal circumstances, domestic and financial, to your Council. The applications are considered by your Housing Committee together with any other information which may be supplied by members of your Council for that area. There is no anonymity and your Housing Committee attach importance to the personal knowledge of your Councillors in making their selection. This system has its advantages as well as its disadvantages.

Housing Nuisances.

During the year there were 21 Informal Notices served under the Public Health Act, and no Statutory Notices were served.

Certificates of Disrepair.

No certificates were issued during the year.

Dangerous Buildings.

No formal action was necessary during the year, but informal action was taken in four cases.

Caravans.

There is now excellent legislation for controlling caravan sites. We were able to work in harmonious and efficient co-operation with both Westmorland County Planning Authority and the Lake District Planning Board for their respective areas within your Rural District. The result of that amicable combination of powers was the adoption of a very high standard of requirements for the siting, equipping and management of caravan sites.

By the end of the year 42 caravan-site licences were in force. They covered a maximum total number of 496 caravans permitted on the sites, usually with seasonal restriction to between 1st March and 31st October in each year. There were, however, included 11 licences for 19 caravans for permanent habitation, a practice which we discourage unless there are very special reasons for such a substandard choice or necessity.

There were also 14 site licences for 72 caravans to meet the special needs of the M.6 motorway construction workers who are temporarily with us.

We still feel the lack of sufficient overnight stopping-sites for touring caravans. With our District on the fringe of the National Park, and lying on the main traffic routes which our visitors use, we have to suffer a lot of mess and risk of disease from caravanners who stop overnight on our highway laybys. These places get very fouled for most of the summer.

Tented Camping.

At the year end there were no licences in force under the Public Health Act. It now excludes caravans and so mainly applies to tented camp sites.

Unlicensed camping sites are limited to occasional use and are mainly on the Ullswater Shore or along the banks of the River Eden during the fishing season. These casual campers cause little nuisance by their improvised sanitary arrangements and refuse disposal, but they take water from polluted becks at their own risk.

WATER SUPPLIES.

The public water supplies are administered by the Eden Water Board, on which your Council has representation. I record my appreciation of the help and liaison maintained by the officers of the Board.

Your Council continue to have a responsibility to check that the quality of the public water supplies is maintained safely for preserving the public health. Periodical tests are made on samples of water from consumers' taps, and some of the results are set out in Appendix A to this Report.

Most of these public water supplies are treated by chemical sterilization. No fluoride is added, and the natural fluorine and radioactivity levels are low.

North Westmorland is fairly well watered. About 90% of the houses are now connected to some water main. The remaining 10% have to rely on individual private systems from wells, springs, becks, and stored rainwater, which may not always yield as much water as the users would like.

The quality of the private water supplies to several hundred houses in North Westmorland is quite another problem. We still retain an official concern with them, because they have not been transferred to the responsibility of the Water Board. I suspect that many of these private supplies are unsatisfactory from time to time, particularly when wet weather affects surface catchments and shallow wells. They are also vulnerable to foul drainage from new building developments uphill when private rights do not afford them full protection.

I can do little more than warn the users that they drink the water at their own risk, that they should have it tested for safety at suitable intervals under their own private arrangements, and that they should boil the water if they are still in doubt.

We shall also continue the excellent liaison with the local officer of the Ministry of Agriculture, Fisheries and Food, for the joint investigation and assessment of applications for grant-aided farm water supply schemes. I have been most grateful for the long-standing co-operation of the Ministry's Regional Advisory Bacteriologist and the other staff of the Regional Headquarters in Newcastle upon Tyne. It enables us to co-ordinate the safeguards to the public health as well as the agricultural interests.

General Distribution.

The Minister of Health requires me to state the number of houses

and population in each of your 52 parishes with water laid on and with water available from standpipes. The figures are set out in the table on an adjacent page.

Although 90% of our North Westmorland houses have a water supply piped into the house, we need to ask what the families are able to do with the water inside their own houses.

The 1961 Census disclosed some facts about the plight of our housewives, 23% of all our houses still had no hot-water tap, 33% of all our houses had no fixed bath: I think that there is a lot of work to be done in North Westmorland to catch up with these decencies and comforts: I believe that they play a part in raising the standard of public health.

PUBLIC WATER DISTRIBUTION, 31.12.67

Parish	No. of Houses in Parish	No. of Houses with water laid on	No. of Houses supplied from Stand Taps	No. of Houses otherwise supplied
Asby	105	100	—	5
Askham	144	144	—	—
Bampton	126	103	—	23
Barton	109	92	—	17
Bolton	97	95	1	1
Brough	226	218	2	6
Brough Sowerby	31	27	—	4
Brougham	87	78	1	8
Cliburn	62	62	—	—
Clifton	110	110	—	—
Colby	28	28	—	—
Crackenthorpe	31	30	—	1
Crosby Garrett	48	48	—	—
Crosby Ravensworth	171	160	—	11
Dufton	83	83	—	—
Hartley	53	45	5	3
Hillbeck	6	6	—	—
Hoff	60	60	—	—
Kaber	35	31	—	4
Kings Meaburn	43	43	—	—
Kirkby Stephen	567	567	—	—
Kirkby Thore	250	249	—	1
Long Marton	218	214	—	4
Lowther	126	110	1	15
Mallerstang	51	10	—	41
Martindale	49	—	—	49
Milburn	57	51	—	6
Morland	97	94	1	2
Murton	107	101	2	4
Musgrave	52	50	—	2
Nateby	39	37	2	—
Newbiggin	39	38	—	1
Newby	50	50	—	—
Ormside	36	36	—	—
Orton	215	202	—	13
Ravenstonedale	218	147	—	71
Shap	420	395	—	25
Shap Rural	57	42	—	15
Sleagill	27	27	—	—
Sockbridge & Tirril	109	109	—	—
Soulby	59	58	—	1
Stainmore	104	2*	—	102
Great Strickland	67	62	—	5
Little Strickland	21	21	—	—
Tebay	277	247	—	30
Temple Sowerby	118	118	—	—
Thrimby	11	9	—	2
Waitby	19	18	—	1
Warcop	158	154	—	4
Wharton	10	10	—	—
Winton	70	67	2	1
Yanwath & Eamont Bridge	78	78	—	—
TOTALS	5431	4936	17	478

* These do not include the houses supplied from the Stainmore Private Supply.

Note. The majority of Houses in column 5 are provided with piped supplies from private sources.

SEWAGE DISPOSAL.

The safe disposal of human sewage and other foul drainage has been recognized for thousands of years as one of the most important ways of protecting the public health. It is still particularly true today in our rural areas, with typhoid and paratyphoid fevers, salmonella and dysentery infections, and many primitive insanitary practices never far from the local scene.

North Westmorland Rural District is served by a series of separate public sewer systems and disposal works which deal with the foul drainage from the villages and more populated parts of other parishes. The remainder of the District has to rely upon individual septic tanks, cesspools, or drainage into watercourses, and some of the more remote houses still retain privies, pails, earth-closets and primitive ways.

Since the end of the war in 1945 your Council have pursued a progressive policy for extending the public sewerage systems to cope with the expanding development round many of our villages, and to improve or replace the existing sewage disposal works which were overloaded or worn out. Somewhat slower has been the bringing of organized public sewerage systems to villages and hamlets where more primitive conditions were becoming dangerous.

Even so, there will probably always be some settlements which cannot easily be linked up to the sewers of a large place, and which do not justify a full-scale system of their own. Many of these can be safely served by group septic tanks where the soil is suitable for absorption of the effluent. Isolated houses must perforce depend on some such individual method of dealing with their foul drainage.

I am indebted to the Engineers for most of the facts set out in the sections of my report which deal with sewage and public cleansing. I also record my appreciation of all their help and co-operation throughout the year on these vital services for safeguarding the public health.

Sewage Disposal Works.

During the post-war period, new sewage disposal works have been built at Brough, Tebay, Shap, Sockbridge, Askham, Temple Sowerby, Ravenstonedale, Newbiggin-on-Lune and Bolton. These have produced a great improvement in the sewered areas around them.

Other improvements have been made to various works notably at Kirkby Stephen, with the joining up of Hartley and Nateby villages to that system. But some of the older works need replacement, particularly at Pooley Bridge, Clifton, Eamont Bridge, Kirkby Thore and Morland.

There are also many other villages which really require the comprehensive installation of new sewers and modern disposal works: they are beyond mere improvement of their existing arrangements. Many of these other villages have ancient culverts or some primitive layout of combined surface water drains and piped sewers, but the arrangements are now hopelessly out-of-date and usually rather insanitary.

Future Sewerage Policy.

A formidable task faces North Westmorland. I reckon it will take a long time, maybe fifteen years or more, before all our sizeable villages can be equipped with new sewers and modern disposal works. Sewerage schemes take a lot longer to prepare and install than water schemes: there are no short cuts towards rapid results. Only long-term planning and careful foresight can help us on towards the village improvements which we should all like to see.

Indeed your Council have worked along these lines for the past twenty years. The policy has produced the very creditable results in our townships and major villages. Your Consulting Engineers have already prepared outline plans for about a dozen future schemes. Of course, our progress has had its ups and downs, with periodical national economy restriction, local limitations with building labour, land acquisition, practical snags, and the weather. But our long-term planning has provided some elasticity, and the general policy has been seen to pay off in the long run.

Although your Council would wish to plan their future programme as far ahead as possible for all their sewerage schemes and replacements, they are no longer the sole arbiters of deciding the relative priorities between the various projects, nor in full control of when they should be carried out. The Rivers Board now have a significant say in all these matters.

Under the Rivers (Prevention of Pollution) Act, 1961, your Council have to seek the consent of the Rivers Board to continue existing discharges of effluent from the public sewage works. Conditions for the quality of these effluents will be imposed, probably according to the Royal Commission standards, and time-limits will be stipulated for achieving them.

It is quite obvious that some of our public sewage disposal works will require structural modifications or replacement to produce effluents of the required standard. It is equally certain that such demands will be reflected in the time-limits to be imposed by the Rivers Board. Therefore the list of relative priorities would seem to be best worked out in the closest collaboration with the Rivers Board.

It would be unreasonable to accept the point of view that all priorities should be dictated by the Rivers Board, and that the quality of existing effluents should be the sole criterion for shaping our future programme of improvements and extensions to the sewerage systems of our District. There are other public health factors to be taken into consideration, including the provision of sewerage to areas which have not yet been served.

My advice to all parties is that these matters should be periodically discussed with the Rivers Board, to take into account all the changing scenes and developments throughout our Rural District. In this way we may be able to formulate our future programmes to please as many people as possible.

But of course nobody could expect your Council to stand still in the meantime. Your own impetus is carrying you forward towards getting on with the next village on your own devised priority list. The following more detailed notes show where we had got to at the end of the year.

Clifton.

The scheme for sewering the village was started about the year end, but the details of the proposed new sewage disposal works were under review because of possible further local development which might affect the size of the works.

Morland.

The scheme for new sewers and sewage disposal works for this village, with provision for the future connection to the sewerage system of the village of Newby, was approved in principle by the Minister of Housing and Local Government during 1967, but sanction to start work was deferred because of national economic restrictions.

I am disturbed about the increasing public health dangers, especially when the level of the village stream is low in Morland. The sewage can be seen running down the banks and ponding in the rocky pools. I made special representations in 1969 to urge government reconsideration for consent to remedy these dangers to the public health.

Kirkby Thore.

After many difficulties in the preparation of a scheme for new sewage disposal works, the plans were approved, and work is expected to start before the end of 1969. The existing sewers and disposal

works have become inadequate to cope with all the recent new housing developments in the village.

Shap.

Due to the urgency of the sewage schemes for Clifton and Kirkby Thore, the Consulting Engineers have had to concentrate on the preparation of the particulars for these schemes, and no further progress has been made with the Shap sewage works extension scheme.

Pooley Bridge.

A scheme has been prepared for new sewers and sewage disposal works, which are now urgently needed in this village because the existing plant has become inadequate due to overloading. Not only has this village grown recently with residential development, but all through the summer it is full with thousands of tourists, visitors, motorists, caravans and the people for the Ullswater steamers. Such a popular holiday spot now merits a proper sewage disposal system.

The siting of the new disposal works was under consideration at the year end, to explore the possibilities of joining our sewers to a new treatment plant recently installed by Penrith R.D.C. not far downstream on the banks of the River Eamont.

Eamont Bridge.

The views of the Penrith Urban Council were obtained about the possibility of discharging sewage from Eamont Bridge into the Penrith sewage system. Penrith Council stated that they had no objection in principle to this proposal. In 1964 your Council instructed their Consulting Engineers to prepare a sewerage scheme for this neighbourhood, to be installed at some future time. It is certainly needed.

Other Needs.

Your Council have formulated a tentative list of other villages where they would like to improve the sewerage in due course. These include Great Asby, Soulby, Crosby Ravensworth, Maulds Meaburn, Great Strickland, Little Strickland, Milburn, Warcop, Dufton, Long Marton, Kings Meaburn, Cliburn, Hilton, Murton, Winton, Hackthorpe, and Lowther. Such were their hopes expressed for the County Development Plan up to 1981. How far we shall get with the programme is anyone's guess.

Public Conveniences.

Your Council provided public conveniences at Kirkby Stephen, Brough, Tebay, Shap, Pooley Bridge and Orton.

The accommodation is generally sufficient for local requirements but it is inadequate to deal with the seasonal motor-coach traffic. These coaches present a special difficulty in Kirkby Stephen which is used as a halting-point for a very large number of Tyneside-Blackpool vehicles, and the shortage is accentuated by their arrival within a short period of time. Fouling of streets, doorways and yards results. Your Council hope to provide some bigger and better conveniences in Kirkby Stephen, in the Sun Inn Yard, and preliminary works have started.

Lavatories for Lay-bys.

I have become increasingly disquieted by the excremental pollution of the lands adjacent to most of the vehicle lay-bys on our main highway routes throughout Westmorland. In some places it is seriously jeopardizing the public health for the residents of the vicinity as well as for the travellers themselves.

The adequate signposting of existing public conveniences in our villages, and somewhere to park while visiting them, may need to be supplemented by advance notices in the intervening highway lay-bys to tell people where to find the next set. Some of our more popular lay-bys may soon justify having public conveniences of their own, perhaps of the simple chemical type, if their proper hygienic maintenance could be arranged.

PUBLIC CLEANSING.

Refuse Collection.

Collections are carried out in all parishes, but in the less populous areas they are limited to once per month. In Kirkby Stephen, Shap, Brough and Tebay, collections are made weekly and in other parts of the District fortnightly.

The nature of the house refuse now collected continues to increase in bulk by reason of large amount of food, etc., which is now sold in cans, cartons, and packets. There is a reduction in the volume of ashes and similar small matter and this causes difficulty at the tips, due to the absence of adequate covering material in the refuse and on account of the large amount of paper and cardboard which is liable to get blown about and cause unsightly conditions about the tips.

Refuse Disposal.

Controlled tipping is the aim of the Council, but it is difficult to obtain sufficient covering material and labour to keep the tips in proper condition. Refuse is disposed of by tipping at seven sites: Kirkby Thore, Waitby, Great Strickland, Tebay, Towcett, Melkinthorpe and Kings Meaburn.

Street Cleansing.

Street cleansing is carried out by the Westmorland County Council in the larger villages, and these are usually maintained in good order.

Extra street cleansing has been carried out at Kirkby Stephen on Sundays during the summer due to the large amount of litter resulting from the coach traffic.

Pest Control.

Mr. T. Taylor continues to function as Pest Officer under the control of the Health Inspectors. The treatment of the refuse tips and sewage works for the destruction of rats is carried out on one or two occasions during the year. The treatment of private houses and other properties is carried out by the Council when requested by the persons responsible, and the costs in these cases are recovered. The Council's refuse tips are regularly treated.

I look upon the systematic destruction of rats and mice as a very helpful contribution towards safeguarding the public from all sorts of unpleasant diseases carried by those animals.

FOOD HYGIENE.

General Powers.

Your Council bear most of the statutory responsibility for safeguarding the public from foodborne diseases. The main aim is directed towards securing proper and hygienic conditions for the manufacture, preparation and sale of food. The secondary aim is to trace and localise any outbreaks of disease which may occur in spite of preventive measures.

Precautions against Contamination.

Food hygiene is steadily improving throughout your area. Public opinion is well ahead of the law and most traders are aware of the fact. The good food trader does not need official instruction in basic cleanliness or the enforcement of legal minimum standards. He may welcome advice on technical problems, but his aim is how high he can get, not how low he can get away with.

The responsibility for safe food does not rest entirely with the trader as the housewife must play her part as well. Quite a lot of strange things happen to food between the shop counter and the dinner plate, and the educational campaign has had to be carried into the home. Foodborne diseases, mild dysenteries and attacks of diarrhœa and vomiting are not infrequent in our homes and among our visitors. I am confident that higher standards will reduce these preventable diseases.

Ice-Cream.

The following premises were registered under Section 16 of the Food and Drugs Act, 1955:—

Manufacture by hot mix, cold mix, storage and sale ...	0
Manufacture by cold mix, storage and sale	1
Storage and sale only	84

Food Trade Categories.

The Minister requires me to furnish certain details about the categories of food trade carried on during the year. They are set out in the adjacent table.

Regulation 16 relates to the requirement for providing wash-hand basins, and Regulation 19 relates to the requirements for providing facilities for washing food and equipment used in food businesses.

Category of Premises	Number	Number fitted to comply with Reg. 16	Number to which Reg. 19 Applies	Number fitted to comply with Reg. 19
Hotels	58	58	58	58
Cafes and Snack bars	18	17	18	18
Grocers, Fruiterers, Confectioners and General	82	79	56	48
Butchers Shops	11	11	11	11
Total	169	165	143	135

Prepared Meats.

The number of premises on the Register for the preparation of sausages, potted meat, preserved meat, pressed meat, and pickled foods, was 27. Informal notices have been issued regarding certain alterations and improvements.

Liquid Eggs.

The Liquid Egg (Pasteurization) Regulations, 1966.

There are no egg pasteurization plants in the District.

Poultry Processing.

There is one premises in the District where dressing and preparation of poultry carcases is carried out.

The dressing of poultry carcases is carried out intermittently: in these circumstances it is possible to inspect only a small percentage of the poultry dealt with.

The operators have been referred to the Code of Practice on Poultry Dressing and Packing, issued by the Ministry of Agriculture, Fisheries and Food (Food Hygiene Code of Practice, No. 5) and to the conditions referred to in the Appendix to Circular 22-61, recommending that any suspect birds be set aside and that the Public Health Inspector be notified immediately.

Milk Registrations.

At the year end there were 21 registered distributors, and four registered dairies which were not dairy farms. No particular difficulties were met, and milk-round vehicles were generally maintained in good condition.

Pathogenic Organisms in Milk.

Biological and other tests on 46 samples taken by various authorities, from sources in our area, continued to be passed to me. I have had no cause during the current year to serve any Notices under the Milk and Dairies Regulations to restrain the sale of milk or the activities of milk-handlers.

Special attention was directed towards the organisms of brucella abortus in the above samples. None were found.

Slaughterhouses.

Your Council adopted a policy of licensing small private slaughterhouses. From the point of view of efficient control and inspection of meat in such a scattered area, this causes many difficulties.

During the year slaughterhouse licences had been operative in respect of the following premises:—

Fletcher Hill, Kirkby Stephen.
Bridge End, Church Brough.
Musgrave Lane, Soulby.
Oak House, Ravenstonedale.
Langton Field, Appleby.

The changing pattern of the meat trade, and the increasingly stringent legal requirements, make it doubtful how much longer it will be economic to maintain such small private slaughterhouses. The local slaughterhouses have been under very critical review by the Ministry of Agriculture, Fisheries and Food during the year, and improvements were demanded.

Condemnation of Other Food.

The following other foodstuffs were condemned:—

Canned Ham and Tongue ...	41 lbs.

Method of Disposal of Condemned Food.

The Minister of Health requires me to describe the current methods for the disposal of condemned food. In this District it is by burial.

Condemnation of Meat at the Abattoir

Food and Drugs Act, 1955.

The following is a summary of the carcases inspected and condemned in whole or in part:—

	Cattle excluding Cows	Cows	Calves	Sheep and Lambs	Pigs
Number killed (if known)	474	4	1	2,542	587
Number inspected ..	474	4	1	2,542	587
All diseases except Tuberculosis and Cysticerci: Whole carcases condemned	—	—	—	5	1
Carcases of which some part or organ was condemned	201	3	—	233	27
Percentage of number inspected affected with disease other than tuberculosis and cysticerci	42.4	75	—	9.36	4.77
Tuberculosis only: Whole carcases condemned	—	—	—	—	—
Carcases of which some part or organ was condemned	—	—	—	—	1
Percentage of number inspected affected with tuberculosis ..	—	—	—	—	.17
Cysticercosis: Carcases of which some part or organ was condemned	—	—	—	—	—
Carcases submitted to treatment by refrigeration	—	—	—	—	—
Generalised and totally condemned	—	—	—	—	—

GENERAL INSPECTIONS.

Your Council employs one Chief Public Health Inspector and one Additional Public Health Inspector.

I have dealt fully in the staff changes section of this Report, with the reorganisation of departmental personnel and the relocation of offices at Appleby. We believe this will be much more efficient.

I record high tribute and appreciation of the work of the public health inspectors throughout the year.

Offensive Trades.

There are no offensive trades in the District.

Factories.

There are 55 factories in your District, one is non-mechanical and 54 are provided with power.

No out-workers were notified to your Council by factory owners.

There are no registered bakehouses in the District.

The register of factories has recently been completely revised and cross-checking carried out with H.M. Inspector's records.

H.M. Inspector of Factories has been sent details of your Rural District's administration of the relevant sections of the Factory Act, 1961.

No references were made to H.M. Inspector and none were received from her. No prosecutions were required.

Factory Inspections.

Premises.	Number of Premises.	Number of		
		Inspections.	Written Notices.	Occupiers prosecuted.
Factories in which Sections 1, 2, 3, 4 and 6 are to be enforced by Local Authorities ..	1	3	—	—
Factories not included in (1), in which Section 7 is enforced by Local Authority	54	49	—	—
Other premises in which Section 7 is enforced by the Local Authority (excluding out-workers' premises)	—	—	—	—
Total	55	52	—	—

Cases in which Defects were found.

Particulars.	Number of cases in which Defects were found.				Number of cases in which prosecutions were instituted.
	Found	Remedied.	Referrred To H.M. Inspector.	Referrred By H.M. Inspector.	
Want of cleanliness (S.1) . .	2	2	—	—	—
Overcrowding (S.2) . .	—	—	—	—	—
Unreasonable temperature (S.3) . .	—	—	—	—	—
Inadequate ventilation (S.4) . .	—	—	—	—	—
Ineffective drainage of floors (S.6)	—	—	—	—	—
Sanitary Conveniences (S.7)					
(*a*) Insufficient	—	—	—	—	—
(*b*) Unsuitable or defective	—	—	—	—	—
(*c*) Not separate for sexes	—	—	—	—	—
Other offences against the Act (not including offences relating to Outwork)	—	—	—	—	—
Total	2	2	—	—	—

Offices and Shops.

Offices, Shops and Railway Premises Act, 1963.

This legislation makes provision for the safety, health and welfare of people employed in these premises. 140 visits were made during the year.

Type of Premises	Registered at year end	Inspected during year	Persons Employed
Offices	11	11	46
Retail Shops	45	45	117
Wholesale Shops and Warehouses ..	2	2	3
Catering establishments open to the public, canteens	19	19	87
Fuel storage depots	1	1	3
Totals	78	78	256

8 written notices and 11 verbal notices were served for contraventions discovered. These were all remedied.

Common Lodging Houses.

There are no registered common lodging houses in the area.

Rent Acts.

No certificates were issued during the year and no contraventions regarding rent book entries were found.

Clean Air.

Informal action was taken to minimise the longstanding nuisance of limestone processing north of Shap Village, and complaints of dust at Kirkby Thore.

Compulsory Removals.

Fortunately it was not necessary to take any Court action for the compulsory removal of uncared-for people. Several individuals were visited for consideration during the year. Such cases are extremely distressing to deal with and the course of compulsory removal is reserved to meet the emergencies of a last resort when all other methods of help have failed. Sometimes it is very hard to decide what is really in the best interests of the patient.

Public Mortuary.

Your Council provide and operate a modern public mortuary at Shap. It is reasonably satisfactory for that limited purpose, and it is not intended for post-mortem examinations.

Your Council also share, with Appleby Borough Council and Westmorland County Council, some premises in Appleby which have long been used as a public mortuary. Your two County District Councils are responsible for operating and maintaining it: the Westmorland County Council merely retain a share in the bricks and mortar.

I believe that public mortuaries should be conducted with a very high standard of cleanliness, decency and reverence, and shall be satisfied with nothing less.

Laboratory Service.

Satisfactory laboratory facilities were available at Carlisle for all public health purposes, free of charge to the Local Authority and the patient. This encourages the use of modern diagnostic methods by general practitioners and your Health Department.

APPENDIX A.
Laboratory Examination of Public Water Supplies.

Nature of Test	Standards Max.	Barton	Bleawater Raw	Bleawater Treated	Brough	Dufton
Pr. Coli count 37° ..	3-10	8	0	0	0	1
Faecal Coli/strep ..	0	+				+
Date sampled last ..		27.11.68	7.6.68	4.10.67	25.6.68	20.11.68
Character	—	Clear	Clear	Clear	Clear	Yellow
Reaction	—	6.8	6.6	8.6	7.1	7.5
Ammonical Nitrogen ..	.041	.07	Trace	Trace	.02	Trace
Albuminoid Nitrogen ..	.066	Trace	.02	.01	.04	Trace
Total Solids	1000	50	25	30	135	110
Hardness { Total ..	300	35	14	18	120	85
Hardness { Carbonate	—	35	8	13	115	70
Hardness { Non-Carb...	—	—	6	5	5	15
Chlorides..	30	8	6	9	8	11
Nitrates	1	0.3	.3	.35	.5	.7
Nitrites	0	—	—	—	—	—
O_2 Absorbed	1	0.1	.4	.35	2.7	.2
Heavy Metals	0	n/a	Nil	Nil	Nil	Nil
Rainfall 24 hours ..	—	—	—	—	—	—
Date Sampled	—	30.8.67	5.9.67	5.9.67	22.8.67	16.8.67
Laboratory	—	Newcastle	Newcastle	Newcastle	Newcastle	Newcastle

Nature of Test	Hilton	Kaber	Kirkby Thore Bore Hole	Kirkby Thore ex. Marble Scaur	Long marton	Maller-stang
Pr. Coli count 37° ..	1	180	0	0	1	5
Faecal Coli/strep ..	+	+			+	+
Date sampled last ..	20.11.68	26.6.68	23.8.67	19.11.68	20.11.68	20.11.68
Character	Clear	Yellow	Yellow	Yellow	Yellow	Yellow
Reaction	6.7	7.3	7.4	7.3	6.7	7.4
Ammonical Nitrogen ..	Nil	.02	Trace	Trace	Trace	.02
Albuminoid Nitrogen ..	.04	.28	Trace	.05	.02	.04
Total Solids	120	145	285	240	75	150
Hardness { Total ..	100	120	240	220	50	125
Hardness { Carbonate..	90	90	170	200	25	115
Hardness { Non-Carb...	10	30	70	20	25	10
Chlorides..	10	10	14	10	10	7
Nitrates	.15	1	2.2	1.1	.7	.4
Nitrites	—	—	—	—	—	—
O_2 Absorbed	.1	9.15	0.1	.85	.3	1.2
Heavy Metals	Nil	Nil	Nil	Nil	Nil	Nil
Rainfall 24 hours ..	—	—	—	—	—	—
Date Sampled	22.8.67	5.9.67	16.8.67	16.8.67	16.8.67	5.9.67
Laboratory	Newcastle	Newcastle	Newcastle	Newcastle	Newcastle	Newcastle

Chemical analyses results are expressed in parts per million.

APPENDIX A.

Laboratory Examination of Public Water Supplies—contd.

Nature of Test	Murton	Tebay	Temple Sowerby	Warcop
Pr. Coli count 37° ..	0	5	0	0
Faecal Coli/strep ..		+		
Date sampled last ..	20.11.68	20.11.68	19.11.68	20.11.68
Character	Clear	Clear	Clear	Clear
Reaction	5.7	7.5	6.6	6.5
Ammonical Nitrogen ..	.04	.02	Trace	Trace
Albuminoid Nitrogen ..	.04	.02	Trace	Trace
Total Solids	30	46	165	145
Hardness { Total ..	15	30	125	130
Hardness { Carbonate..	5	—	80	120
Hardness { Non-Carb...	10	30	45	10
Chlorides..	11	7	14	14
Nitrates	.3	—	4.4	.6
Nitrites	—	—	—	—
O_2 Absorbed	.05	.2	.25	.1
Heavy Metals	Nil	n/a	Nil	Nil
Rainfall 24 hours ..	—	—	—	—
Date Sampled	22.9.67	21.2.62	16.8.67	22.8.67
Laboratory	Newcastle	Carlisle	Newcastle	Newcastle

Chemical analyses results are expressed in parts per million.